Stoltzfus, Robert

From: wentworth, paul
Sent: Tuesday, April 29, 2014 7:46 AM
To: Biji Pandisseril
Cc: Stoltzfus, Robert; Hall, kristen
Subject: EPA Comments Reactivation of South Yard South Flare (P-643) (CD-112) with a dedicated IR camera to monitor the presence of a flare flame.Plan Approval 13260
Attachments: ccaw_ord.pdf; PES South Yard South Flare plan approval ; PES south yard flare additional comments; Additional Comments for PES South Yard South Flare Plan Approval

Biji: At this point, pleased find, attached, all of EPA's comments regarding Plan Approval 13260, which include my previously sent comments. Please feel free to contact me. At your convenience, I would like to get a copy of the permit application and any related calculations.

Thanks for your help
Regards

Paul

From: wentworth, paul
Sent: Wednesday, April 09, 2014 9:55 AM
To: Biji Pandisseril
Cc: augustine, bruce
Subject: Reactivation of South Yard South Flare (P-643) (CD-112) with a dedicated IR camera to monitor the presence of a flare flame.Plan Approval 13260

Biji Here are my initial comments on this plan approval. There needs to be an explanation as to why this reactivated flare should not be considered a new source and analyzed to determine if it triggers PSD and or NNSR requirements. The guidance on how to determine this is provided in the attached document starting on page 8. It is recommended that the explanation follow the outline in this document. Please feel free to discuss this with me.

Stoltzfus, Robert

From: Hall, kristen
Sent: Tuesday, April 22, 2014 9:07 AM
To: wentworth, paul
Cc: Stoltzfus, Robert
Subject: PES south yard flare additional comments

Paul, below are my comments for the south yard flare permit.

Testing Requirements (c)(1) -

) In lieu of conduction (conducting) the velocity test , the Permittee may submit velocity calculations which demonstrate that the Flare meets the performance specification required by 40 VFR (CFR) 60.18

Monitoring and Record Keeping
14(a) – for the monitoring of the flare with the IR camera – add in CONTINUOUSLY monitored with the IR Camera. It may be implied, but I think it needs to be clearly stated.

How much can we add? Ideally, the IR camera feed should also be recorded, its not a requirement, but, it's an element that has been included in Flare CDs injunctive relief and is a very helpful tool for facilities to be able to look back and verify if a flame was present or not, if there is a question.

Thanks
Kris

Stoltzfus, Robert

From: Hall, kristen
Sent: Monday, April 28, 2014 3:57 PM
To: wentworth, paul
Cc: Stoltzfus, Robert
Subject: Additional Comments for PES South Yard South Flare Plan Approval

Paul,

In addition to the comments I'd sent previously, below are the additional comments Bob and I have on the PES South Yard South Flare Plan Approval. Let us know if you have any questions.

1. Will the South Yard South Flare be used as an alternate to the South Yard North Flare or as an Emergency Flare? If it is to be used as an Emergency Flare, does it meet the definition of "Emergency Flare" as defined in 40 CFR Part 60, Subpart Ja and will the permit conditions impose those limitations?

2. For general compliance with 40 CFR 60.18, please add – "The flare shall be operated with a Steam to Vent gas ratio at less than or equal to an S/VG_{mass} of 3.0 on a one-hour rolling average, rolled every five minutes."

3. For general compliance with 40 CFR 60.18, please add "The flare shall be operated with a minimum of a 98% Combustion Efficiency at all times when waste gases are vented to it."

4. The permittee must be able to demonstrate that its operation of the flare is in compliance with all permit terms. For example, the permittee should:

    a. Monitor continuously the velocity of the gas using a gas flow meter.
    b. Calculate, on a three (3) hour rolling average, the net heating value of the gas and the exit velocity.
    c. Maintain records of exit velocity readings and the net heating value calculations.

5. The monitoring required for the required compliance demonstration should include, at a minimum, a steam flow meter, waste gas flow meter and molecular weight MW) meter. As the flow of waste gas to the flare increases, the need for additional monitoring equipment, such as, a BTU meter, a gas chromatograph and an automated steam control system should be examined. At this time, EPA is unable to determine what monitoring equipment and controls are currently utilized with the South Yard South Flare. Please identify if the South Yard South Flare currently has a steam flow meter, a waste gas flow meter, a MW meter, a thermo couple, an auto igniter, an alarm and a video or IR camera and the locations of any such pieces of equipment as related to the flare and incoming steam and gas lines.

6. What is the current flow rate of the South Yard South flare?

Thanks
Kris

Stoltzfus, Robert

From: Biji Pandisseril <Biji.Pandisseril@phila.gov>
Sent: Friday, March 21, 2014 3:58 PM
To: wentworth, paul
Subject: PES South Yard South Flare plan approval
Attachments: PA PES Ref South Flare 13260 3.21.14.docx; 01501 PES Ref - PB South Yard South Flare reactivation - 13260 3.21.14.docx

Mr Wentworth,

Attached is the draft plan approval and SOB for the PES plan approval. Please let me know if you have any comments.

I am sorry, but this has been sent you late, I some how missed sending it to you. The public notice was published on March 1. Please let me know if the EPA comment period starts now or from March 1st.

Sincerely,
Biji Pandisseril
Air Management Services
321 University Ave
Philadelphia PA 19104

Phone: 215-685-9427
Fax: 215-685-7593

CITY OF PHILADELPHIA
DEPARTMENT OF PUBLIC HEALTH
AIR MANAGEMENT SERVICES

PLAN APPROVAL

Plan Approval No.: 13260 Date: XXXX

Plant ID: 01501

Owner:	PES Refining and Marketing	Source:	PES Philadelphia Refinery
Address:	3144 Passyunk Ave Philadelphia, PA 19145	Location:	3144 Passyunk Ave Philadelphia, PA 19145

Attention: Charles Barksdale
215-339-2074

Pursuant to the provisions of Title 3 of the Philadelphia Code, the Air Management Code of February 17, 1995, as amended, and after due consideration of a plan approval application received under the rules and regulations of the Philadelphia Air Pollution Control Board, the City of Philadelphia Department of Public Health, Air Management Services (AMS) on January XXXX approved plans for the operation of the air contamination device(s) described below:

Reactivation of South Yard South Flare (P-643) (CD-112) with a dedicated IR camera to monitor the presence of a flare flame.

This Plan Approval expires on XXXX. If construction has not been completed by this date, an application for either an extension or new plan approval must be made. The conditions of this plan approval will remain in effect until they are incorporated in an operating permit.

This Plan Approval is subject to conditions prescribed in the attachment.

_____
Edward Wiener
Chief of Source Registration
(215)-685-9426

PLAN APPROVAL CONDITIONS
PLAN APPROVAL NO. 13260
COMPANY: PHILADELPHIA ENERGY SOLUTIONS REFINING & MARKETING LLC.

1. The South Yard South Flare shall be operated in accordance with the manufacturer's specifications and specifications in the application (as approved herein).

2. The South Yard South Flare shall comply will all applicable requirements set-forth in 40 CFR 60 Subpart A and J, 40 Subpart 63 Subpart A, and the Consent Decree.

Work Practice:

3. The Permittee shall not burn in flare any fuel gas that contains hydrogen sulfide (H_2S) in excess of 230 mg/dscm (0.10 gr/dscf) on rolling 3-hour period. The combustion in a flare of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions is exempt [40 CFR 60.104(a)(1), 40 CFR 60.105(e)(3)(ii)]

4. The flare shall be designed for and operated with no visible emissions as determined by the methods specified in 40 CFR 60.18(f), except for periods not to exceed a total of 5 minutes during any 2 consecutive hours. [40 CFR 63.11(b)(4) and 40 CFR 60.18(c)(1)]

5. The flare shall be operated at all times when gases may be vented to them. [40 CFR 63.643(a)(1), 40 CFR 63.11(b)(3), 40 CFR 60.18(e)]

6. The flares shall be operated with a pilot flame present at all times. [40 CFR 63.11(b)(5), 40 CFR 60.18(f)(2)]

7. The Permittee shall operate and maintain a flare gas recovery system to prevent continuous or routine combustion in the flare. [Consent Decree, Use of the flare gas recovery system obviates the need to continuously monitor emissions as otherwise required by 40 CFR 60.105(a)(4)]
   (a) Periodic maintenance shall be conducted for flare gas recovery systems.
   (b) All reasonable measures shall be taken to minimize emissions during the periodic maintenance on a flare gas recovery system is being performed.
   (c) The flare gas recovery system may be bypassed in the event of an emergency or in order to ensure safe operation of refinery processes.

8. The flare (steam-assisted flare) shall be used only when the net heating value of the gas being combusted is 11.2 MJ/scm (300 Btu/scf) or greater. The net heating value of the gas being combusted shall be determined by the methods specified in 40 CFR 60.18(f)(3). [40 CFR 60.18(c)(3)(ii)]

9. The flare (steam-assisted flare) may be designed and operated with an actual exit velocity less than Vmax and less than 122m/sec (400 ft/sec) [40 CFR 60.18(c)(4)(iii)]
   (a) Actual exit velocity shall be determined in accordance with 40 CFR 60.18(f)(4)
   (b) Vmax shall be determined in accordance with 40 CFR 60.18(f)(5)

10. The Permittee shall implement good air pollution control practices to minimize Hydrocarbon Flaring Incidents in accordance with the procedures in the Consent Decree.

Testing Requirements:

11. Within 60 days of start-up of the flare, the Permittee shall conduct performance test as follows:
    (a) Test Method 22 in Appendix A of 40 CFR 60 shall be used to determine the compliance of flares with the visible emission limitations. The observation period is 2 hours and shall be used according to Method 22. [40 CFR 63.11(b)(4), 40 CFR 60.18(f)(1)]

(b) The net heating value of the gas being combusted in a flare shall be calculated using the following equation [40 CFR 60.18(f)(3)]:

$$H_T = K \sum_{i=1}^{n} C_i H_i$$

where:

H_T=Net heating value of the sample, MJ/scm; where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C;

C_i=Concentration of sample component "i" in ppm on a wet basis, as measured for organics by Reference Method 18 and measured for hydrogen and carbon monoxide by ASTM D1946-77; and

H_i=Net heat of combustion of sample component i, kcal/g mole at 25°C and 760 mm Hg. The heats of combustion may be determined using ASTM D2382-76 if published values are not available or cannot be calculated.

(c) The actual exit velocity of a flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D as appropriate; by the unobstructed (free) cross sectional area of the flare tip. [40 CFR 60.18(f)(4)]

(i) In lieu of conduction the velocity test , the Permittee may submit velocity calculations which demonstrate that the Flare meets the performance specification required by 40 VFR 60.18

(d) The maximum permitted velocity, V_{max}, for flares complying with 40 CFR 60.18(c)(4)(iii)) shall be determined by the following equation: [40 CFR 60.18(f)(5)]

$$\text{Log10}\,(V_{max}) = (HT + 28.8)/31.7$$

where:

V_{max}=Maximum permitted velocity, M/sec

28.8 = Constant

31.7 = Constant

H_T=The net heating value as determined in 40 CFR 60.18 (f)(3).

Monitoring and Recordkeeping Requirement:

12. The Permittee shall monitor the fuel type and fuels usage of the fuel burned for each flare pilot on a daily basis.

(a) H2S in the refinery fuel gas fired at the pilot shall be monitored using a continuous monitor and recorder at the Point Breeze Fuel Gas Mix Drum, ~~except when burning fuel gas that is inherently low in sulfur content, such as natural gas~~

13. The Permittee shall monitor that the feed to the flares has not exceeded the worst case scenario used in the modeling demonstration. The Permittee shall determine SO2 emissions using the same analysis and calculations used in the modeling demonstration. [SO2 Operating Permit]

14. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.[40 CFR 63.11(b)(5), 40 CFR 60.18(f)(2)]

(a) The flare flame shall be monitored using an IR camera.

Reporting Requirements:

15. The Permittee shall follow the same investigation, reporting, and corrective action procedures as those set forth in Section V.K for Acid Gas Flaring Incidents of the Consent Decree. The results of this will be submitted with the Semi-Annual CD Report.

16. The Permittee shall submit an excess emission and continuous monitoring system performance report and/or a summary report to the EPA Administrator and AMS semiannually stating when and how long the pilot flame was not present. [40 CFR 63.10(e)(3)]

17. The Permittee shall submit CEM report for the H2S to Air Management Services on a quarterly basis. CEM reports must meet the requirements of the PA CSMM.

18. The Permittee shall submit all calculation used to comply with Condition 11 for

19. All notifications required, as a result of any condition herein should be directed to

Chief of Source Registration
Air Management Services
321 University Avenue
Philadelphia, PA 19104

and all notifications required by the Consent Decree and NSPS Ja shall also be directed to EPA at:

Associate Director
Office of Enforcement and Compliance Assistance (3AP20)
U.S. EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Future Requirements (no later than November 11, 2015):

20. The flare shall comply with all applicable requirements of 40 CFR 60 Subpart Ja.

21. The Permittee shall not burn any fuel gas containing H2S in excess of 162 ppmv in the flare. The H2S content in the fuel gas shall be determined hourly on a 3-hour rolling average basis [40 CFR 60.103a(h) and 40 CFR 60.103a(f)]
    (a) The combustion in the flare of process upset gases or fuel gas that is released to the flare as the result of relief valve leakage or other emergency malfunctions is exempt from the above limit.

22. The Permittee shall develop and implement a written flare management plan **no later than the November 11, 2015** in accordance with 40 CFR 60.103a

23. The Permittee shall conduct a root cause analysis and a corrective action analysis for each of the following [Consent Decree and 40 CFR 103a(c)]
    (a) Any time the SO2 emission exceeds 227 kilograms (kg) (500 lbs) in any 24-hour period
    (b) Any discharge to the flare in excess of 14,160 standard cubic meter (m3) (500,000 standard cubic feet (scf)) above the baseline, determined in 40 CFR 60.103a(4)

24. The Permittee shall complete a root cause analysis and corrective action analysis as soon as possible, but no later than 45 days after a discharge meeting one of the conditions specified Condition 23. Special circumstances affecting the number of root cause analyses and/or corrective action analyses are as follows: [40 CFR 60.103a(d)]
    (a) If a single continuous discharge meets any of the conditions specified in Condition 23 for 2 or more consecutive 24-hour periods, a single root cause analysis and corrective action analysis may be conducted.
    (b) If a single discharge from a flare triggers a root cause analysis based on more than one of the conditions in Condition 23(a) - (b), a single root cause analysis and corrective action analysis may be conducted.
    (c) If the discharge from a flare is the result of a planned startup or shutdown of a refinery process unit or ancillary equipment connected to the affected flare and the procedures in 40 CFR 60.103a(a)(5) were followed, a root cause analysis and corrective action analysis is not required; however, the discharge must be recorded as described in §60.108a(c)(6) and reported as described in §60.108a(d)(5).
    (d) If both the primary and secondary flare in a cascaded flare system meet any of the conditions specified in 40 CFR 60.103a(c)(1)(i)-(iii) in the same 24-hour period, a single root cause analysis and corrective action analysis may be conducted.
    (e) Except as provided above in Condition 24(d), if discharges occur that meet any of the conditions specified in Condition 23(a) - (b) for more than one affected facility in the same 24-hour period, initial root cause analyses shall be conducted for each affected facility. If the initial root cause analyses indicate that the discharges have the same root cause(s), the initial root cause analyses can be recorded as a single root cause analysis and a single corrective action analysis may be conducted.

25. The Permittee shall implement the corrective action(s) identified in the corrective action analysis conducted pursuant to Condition 24 in accordance with the following applicable requirements: [40 CFR 60.103a(e)]
    (a) All corrective action(s) must be implemented within 45 days of the discharge for which the root cause and corrective action analyses were required or as soon thereafter as practicable. If the Permittee concludes that corrective action should not be conducted, the Permittee shall record and explain the basis for that conclusion no later than 45 days following the discharge as specified in 40 CFR §60.108a(c)(6)(ix).
    (b) For corrective actions that cannot be fully implemented within 45 days following the discharge for which the root cause and corrective action analyses were required, the owner or operator shall develop an implementation schedule to complete the corrective action(s) as soon as practicable.
    (c) No later than 45 days following the discharge for which a root cause and corrective action analyses were required, the Permittee shall record the corrective action(s) completed to date, and, for action(s) not already completed, a schedule for implementation, including proposed commencement and completion dates as specified in 40 CFR§60.108a(c)(6)(x).

26. The Permittee shall keep records of discharges greater than 500 lb SO_2 in any 24-hour period from the flare. Records shall be recorded no later than 45 days following the end of a discharge exceeding the thresholds. The records shall include information as required in 40 CFR 60.108a(c)(6). [Consent Decree and 40 CFR 60.108a(c)(6)]

27. The Permittee shall continuously monitor and record the H2S concentration for fuel gases being burned in the flare in accordance with 40 CFR 60.107a(a)(2).

28. The Permittee shall continuously monitor and record the flow rate of gas discharged to the flare. [40 CFR 60.107a(f)]

29. The total reduced sulfur concentration for each gas line directed to the flare shall be monitored in accordance with either paragraph 40 CFR 60.107a(e)(1), (e)(2) or (e)(3). [40 CFR 60.107a(e)]

30. The Permittee shall maintain a copy of the Flare Management Plan.[40 CFR 60.108a(c)(1)]

31. The Permittee shall keep records of the H_2S and total sulfur analyses of each grab or integrated sample, the calculated daily total sulfur-to-H_2S ratios, the calculated 10-day average total sulfur-to-H_2S ratios and the 95-percent confidence intervals for each 10-day average total sulfur-to-H_2S ratio. [40 CFR 60.108a(c)(7)]

32. The Permittee shall submit the flare management plan to AMS and EPA in accordance with 40 CFR 60.103a(b) no later than November 11, 2015.

33. The Permittee shall submit an excess emissions reports for all periods of excess emissions as defined in 40 CFR 60.107a(i)(2)(i) in accordance with 40 CFR 60.108a(d)

34. All notifications required in 40 CFR 60 Supart Ja shall be submitted to the following address: [40 CFR60.103a(b)(3)]

U.S. Environmental Protection Agency,
Office of Air Quality Planning and Standards, Sector Policies and Programs Division,
U.S. EPA Mailroom (E143-01),
Attention: Refinery Sector Lead,
109 T.W. Alexander Drive,
Research Triangle Park, NC 27711.

Electronic copies in lieu of hard copies may also be submitted to refinerynsps@epa.gov.

cc: AMS Conformance file

CITY OF PHILADELPHIA
Department of Public Health
Public Health Services
Air Management Services

Statement of Basis

To: File

From: Biji Pandisseril

Date: 3/21/14

Subject: Reactivation of South Yard South Flare.

Description:

PES has submitted a plan approval application to reactivate the South Yard South Flare which was out of service.

Summary:

The facility is a major source as due to the facility's potential to emit Volatile Organic Compounds (VOC), Nitrogen Oxides (NOx), Particulate Matter less than 10 microns (PM-10), Sulfur Oxides (SOx), Carbon Monoxide (CO), and Hazardous Air Pollutants (HAPs).

PES on September 25, 2013 was allowed to temporary reactivation and replacement of the PB South Yard South Flare and now has requested to permanently operate the South Yard South Flare as an alternate to the South Yard North Flare.

The reactivation would include the replacement of ZEECO flare tip and ignition system, installation of dedicated IR camera for monitoring of retractable thermo well at each of the four (4) pilots, repairs on the knock-out drum , and replacement of existing flare water seal drum. The flare will also operate with a flare gas recovery system.

Permit Requirements:

The South Yard South Flare was included in the Consent Decree but was considered out of operation. The facility will be required to meet all applicable requirements of the Consent Decree upon permanent start up.

Since the project does not meet the definition of modification in accordance with 60.100a(c) the flare would be required to meet Subpart J at this time and will be required to meet Ja beginning with 11/2015. At which time the Permittee would need to submit the Flare Management Plan.

The reactivation of the flare does not increase any emission therefore does not NSR or PSD.

The facility will be required to meet the requirement of 40 CFR 60.18 and the Consent Decree. The refinery fuel gas is required to be less than 0.10 gr/dscf on 3 hour average. The facility is rquired to monitor the fuel gas burnt in the pilot on a continuous basis. The facility will monitor the H2S content at the PB Fuel Gas Mix Drum.

The facility is required to meet 300 BTU/scf of net heating value and velocity of less than 400 ft/sec. The facility is required to demonstrate compliance via engineering calculations as required in 40 CFR 60.18.

The flare is required to operate whenever gases are vented to the flare and a pilot flame is required at all times. The facility will use IR camera to monitor the flare pilot flame.

Any malfunction and corrective actions is required to be investigated and reported in accordance with the Consent Decree.